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Subject: Application 10/500,258

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December 18, 2005

Galen L. Barefoot
c/o Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RE: Application No. 10/500,258

Dear Mr. Barefoot:

In response to your rejection of claims 1-6 and 8-20 based upon Busby (3606210) in view of Peterson et al (3388878):

Busby (3606210) describes and makes claims only to a control mechanism for a sleeve which would house a generic source of propulsion (presumably jet), its lateral thrust producing modules rotatable 180 degrees in an axis parallel to the aircraft, the plane of such movements remaining static. With the engines, or thrust modules, in a vertical alignment, the transverse range of motion of the above modules is minimal with only a few degrees in either direction possible due to the proximity of the engines to the airframe, and being functionally limited to vertical and hovering flight for the stated purpose of stability during those operations. It should be noted that the inevitable variances in thrust output of the engines in Busby (3606210) render the entire arrangement inherently unstable in both vertical and horizontal flight likely resulting in a progressive oscillation.

Patent application (10/500,258) describes and makes claims to an integrated propulsion/control system, its lateral thrust producing modules rotatable 180 degrees in any spatial plane from parallel to perpendicular (with respect to the craft to which it would be applied). This critical difference with Busby (3606210) is very significant as thrust can be applied in any direction and on any spatial plane (when viewing all of the thrust modules operating in concert) during vertical, transitional, and especially horizontal flight. The result is the ability to vary the ratio of thrust applied to steering and stabilization as the former cannot safely occur without attention to the latter, largely due to the many variables during flight operations such as changing mass and speed, wind direction and barometric pressure. Further accentuating performance is the ability of the thrust modules (Burner Units) of 10/500,258 to manipulate thrust so as to vary the balance of the exhaust escape velocity versus the exhaust escape mass. This combination of attributes would enable the stabile execution of high turn rates at high speeds with rapid acceleration recovery, and complimented by a center of rotation common to pitch, roll, and yaw axes. The ergonomic accommodation for this is a cockpit located proximate said center of rotation.

With respect to Peterson (3388878), any attempt to interject this design in combination with Busby (3606210) is not tenable as Busby's design is predicated upon the utilization of thrust producing modules (I.e. fully contained jet engines) that are completely isolated from one another by virtue of the containment sleeve and the actuating mechanism.

In response to your rejection of claim 7 based upon Pharris (4044971):

There appears to be a fundamental misconception of the utilization of oxygen within patent application (10/500,258) -- the thrust producing modules therein do not employ afterburners. The presence of oxygen is primarily as a substitute for compressed air during trans-atmospheric flight. And while it is true that it may also be used during atmospheric flight, it would then be combined with compressed air allowing for an increase in the amount of fuel with which it would be combined at the point of combustion -- not subsequently.

Thank you for your attention to, and consideration of the above matter.

Ricardo A. Ducasse